

REMARKS

This Amendment and Response are made in reply to the Final Office Action dated April 17, 2008, in which the Examiner:

Rejected claims 1, 2 and 5 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,809,833 to Newport et al.; and

Rejected claims 3 and 4 under 35 U.S.C. § 103(a), as being unpatentable over U.S. Patent No. 5,809,833 to Newport et al. in view of U.S. Patent No. 4,712,441 to Abraham.

Applicants respectfully traverse the rejections below. Claims 1-5 are currently pending.

Regarding the rejection of claims 1, 2 and 5 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,809,833 to Newport et al., amended claim 1 recites a linear actuator comprising a shaft having a male thread portion, a worm gear speed reducer for reducing rotation of a motor in speed and transmitting the rotation to the shaft, a female thread member which is threadedly engaged with the male thread portion and which moves forward and backward by normal or reverse rotation of the shaft, a moving cylinder which is fixed to the female thread member and which moves forward and backward with respect to a housing, and a position detection apparatus which is disposed in parallel to the shaft and allows detection of a position of the moving cylinder in the housing to be adjusted.

Amended claim 5 recites a linear actuator comprising a shaft having a male thread portion, a worm gear speed reducer for reducing rotation of a motor in speed and transmitting the rotation to the shaft, a female thread member which is threadedly engaged with the male thread portion and which moves forward and backward by normal or reverse rotation of the shaft, a moving cylinder which is fixed to the female thread member and which moves forward and backward with respect to a housing, and a position detection apparatus which is disposed in parallel to the shaft and detects a position of the moving

cylinder, wherein the mounting of the position detection apparatus allows the position of the moving cylinder detected by the position detection apparatus to be adjusted in the housing.

An anticipation rejection is improper unless a single prior art reference shows or discloses each and every claim recitation. Newport does not show or disclose each and every recitation of independent claims 1 and 5. Specifically, Newport does not show or disclose a position detection apparatus which is disposed in parallel to the shaft. Instead, Newport shows a potentiometer 124 that is orthogonal to the lead screw 30. (Newport, Fig. 7).

Additionally, with regard to claim 1, Newport does not show or disclose a position detection apparatus that allows detection of a position of the moving cylinder in the housing to be adjusted. Since Newport discloses that mounting bracket 74 maintains the gear backlash between the potentiometer 124 and the lead screw 30 (Newport, col. 6, lines 53-62), Newport's potentiometer does not allow detection of a position to be adjusted. For the same reason, with regard to claim 5, Newport does not show or disclose a position detection apparatus that allows the position of the moving cylinder detected by the position detection apparatus to be adjusted in the housing. The Examiner erroneously states that this recitation reciting that the potentiometer allows detection of a position to be adjusted is shown by Newport because Newport includes limit switches (120, 122) which can be adjusted to stop the moving cylinder (32). (Final Office Action, page 5). Applicants respectfully disagree. Newport's limit switches do not allow the detection of a position of the moving cylinder to be adjusted, but rather, "[t]he limit switches 120 and 122 are used to stop the motor from rotating in its current direction when the number or revolutions of the lead screw corresponds to a predetermined point of travel." (Newport, col. 6, lines 14-17). Therefore, Newport's limit switches do not allow positional detection adjustment, but rather only indicate a stopping point based on the detection of a specific position. Since Newport does not show or disclose each and every element of claims 1 and 5 of the present invention, Newport does not anticipate claims 1 and 5.

Claim 2 of the present invention depends directly from amended claim 1 and includes additional recitations thereto. Therefore, Newport does not anticipate claim 2 for at least the reasons stated above in connection with claim 1.

Additionally, Newport does not show or disclose that the position detection apparatus is movably provided on the housing. Instead, Newport discloses that “[t]he mounting bracket 74 supports the positional encoder-potentiometer 124”. (Newport, col. 6, lines 53-54). The Examiner asserts that the mounting bracket 74 is movably provided on the housing because “[d]uring assembly, the bracket is aligned such that the gears mesh properly and maintain the necessary gear backlash to each other and between the gears and the lead screw (30).” (Final Office Action, page 6). However, Newport does not show or disclose anything with regard to the assembly of its linear actuator, and certainly does not disclose that its mounting bracket is movably provided on the housing during assembly. Furthermore, even if Newport did disclose that its mounting bracket was movably provided during assembly, Newport only discloses a linear actuator upon completion of assembly. Therefore, the ability of mounting bracket 74 to move during assembly does not show a linear actuator having a position detection apparatus that is movably provided on the housing, as recited in claim 2. Additionally, in the citation provided by the Examiner in support of this rejection, Newport discloses that the support bracket 74 functions to locate the gear center distance of the potentiometer so as to maintain the necessary backlash between the gear and the lead screw 30. (Newport, col. 6, lines 57-62). “Locate” is defined as “to set or establish in a particular spot or position.” (“Locate.” Def.2a. Webster’s Third New International Dictionary. 1961.). Therefore, the support bracket 74 disclosed in Newport does not allow the potentiometer to be movably provided on the housing.

Accordingly, the rejection of claims 1, 2 and 5 under 35 U.S.C. § 102(b) should be withdrawn.

Regarding the rejection of claims 3 and 4 under 35 U.S.C. § 103(a) as being unpatentable over Newport in view of Abraham, claims 3 and 4 depend from both claims 1 and 2 and include additional recitations thereto. As stated above, claim 1 recites that a position detection apparatus which is disposed in parallel to the shaft and allows detection of a position of the moving cylinder in the housing to be adjusted, and claim 2 recites that the position detection apparatus is movably provided on the housing. A *prima facie* case of

unpatentability under 35 U.S.C. § 103(a) is established when the teachings from the prior art itself appear to suggest the claimed subject matter to a person of ordinary skill in the art.

Neither Newport nor Abraham, nor the combination thereof, teaches or suggests the recitations of claims 1 and 2. For example, Newport does not teach or suggest a position detection apparatus which is disposed in parallel to the shaft. Instead, Newport teaches a potentiometer 124 that is orthogonal to the lead screw 30. (Newport, Fig. 7). Additionally, Newport does not teach or suggest a position detection apparatus that allows detection of a position of the moving cylinder in the housing to be adjusted. Instead, Newport teaches a potentiometer that does not allow detection of a position to be adjusted in the housing because Newport teaches that mounting bracket 74 maintains the gear backlash between the potentiometer 124 and the lead screw 30 (Newport, col. 6, lines 53-62). Additionally, Newport's limit switches do not teach adjustment of the detection of a position within the housing, but rather only teach that movement of the actuator may be stopped based on the detection of a specific position. Newport also does not teach or suggest that the position detection apparatus is movably provided on the housing. Instead, Newport teaches that "[t]he mounting bracket 74 supports the positional encoder-potentiometer 124" (Newport, col. 6, lines 53-54), and that the support bracket 74 functions to locate the gear center distance of the potentiometer so as to maintain the necessary backlash between the gear and the lead screw 30. (Newport, col. 6, lines 57-62). Therefore, the stationary support bracket 74 taught by Newport does not teach a potentiometer that is movably provided on the housing.

Abraham does not add to the teachings of Newport at least in that Abraham also does not teach or suggest that a position detection apparatus which is disposed in parallel to the shaft. Instead, like Newport, Abraham teaches a limit switch assembly 34 for positional detection that is orthogonal to the drive screw 54, 138. (Abraham, Fig. 2). Additionally, Abraham does not teach or suggest a position detection apparatus that allows detection of a position of the moving cylinder in the housing to be adjusted. Instead, like Newport, Abraham also teaches a positional indicating means with a gear 200 that is always engaged with drive gear 146 through idler gear 188 and speed reduction

gears 194, 196 and 198. (Abraham, col. 7, lines 50-57). Therefore, Abraham fails to teach a position detection apparatus that allows detection of a position of the moving cylinder in the housing to be adjusted. Abraham does not add to the teachings of Newport at least in that Abraham also does not teach or suggest that the position detection apparatus is movably provided on the housing. Instead, Abraham discloses a potentiometer 190 that is mounted on a potentiometer bracket 192, which is supported above the base plate 148 by a spaced mounting plate 202 that is mounted with screws 206. (Abraham, col. 7, lines 52-60). Abraham does not teach that any of the components of this potentiometer mounting system are movably provided.

Therefore, the combination of Newport and Abraham still does not teach or suggest the recitations of claims 1 and 2.

Since neither Newport nor Abraham, nor the combination thereof, teaches or suggests each and every recitation of Applicants' claims 1 and 2, the rejection of dependent claims 3 and 4 under 35 U.S.C. § 103(a) should be withdrawn.

Having traversed each and every rejection, Applicants respectfully requested that the rejections be withdrawn, and claims 1-5 be passed to issue.

Applicants respectfully submit that nothing in the current Amendment constitutes new matter.

Applicants believe no fees are due in connection with this Amendment and Response. If any fees are deemed necessary, please charge them to deposit account No. 13-0235.

Respectfully submitted,

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